

[0016] Repeat use of reference characters in the present specification and drawings is intended to represent the same or analogous features or elements of the present disclosure.

#### DETAILED DESCRIPTION

[0017] It is to be understood by one of ordinary skill in the art that the present discussion is a description of exemplary aspects only, and is not intended as limiting the broader aspects of the present disclosure.

[0018] The present disclosure is generally directed to training systems for absorbent articles that indicate to a user when a body fluid has insulted the article. For example, in one aspect, the training system is designed to provide a tactile cue when urine is deposited in the absorbent article.

[0019] In accordance with the present disclosure, the training system can have various configurations and designs. Referring to FIGS. 1 and 2, for exemplary purposes, an absorbent article 20 that can be used in conjunction with training systems of the present disclosure is shown. The absorbent article 20 can be disposable or not. It is understood that the present disclosure is suitable for use with various other absorbent articles intended for personal wear, including but not limited to diapers, training pants, swim pants, feminine hygiene products, incontinence products, medical garments, surgical pads and bandages, other personal care or health care garments, and the like without departing from the scope of the present disclosure.

[0020] The methods and apparatus of the present disclosure can be used to make a variety of pre-fastened articles such as disposable absorbent articles including diapers, training pants, feminine hygiene products, incontinence products, medical garments, other personal care or health care garments, swim pants, athletic clothing, pants and shorts, and the like. More particularly, the methods and apparatus of the present disclosure can be used to make articles in which at least two elements of the article are connected together during the making thereof to assemble or “pre-fasten” the article. For ease of explanation, the methods and apparatus of the present disclosure are hereafter described in connection with making pre-fastened child’s pants, generally indicated as 20 in FIG. 1. In particular, the methods and apparatus will be described in terms of those for making pre-fastened disposable pants as described in U.S. patent application Ser. No. 09/444,083 titled “Absorbent Articles With Refastenable Side Seams” and filed Nov. 22, 1999 (corresponding to PCT application WO 00/37009 published Jun. 29, 2000) by A. L. Fletcher et al., the disclosure of which is incorporated herein by reference. Absorbent article 20 can also be constructed using the methods and apparatus disclosed in U.S. Pat. No. 4,940,464 issued Jul. 10, 1990 to Van Gompel et al.; and U.S. Pat. No. 5,766,389 issued Jun. 16, 1998 to Brandon et al.; the disclosures of which are also incorporated herein by reference.

[0021] It should be understood that as used herein, the term “component” includes not only discrete objects, but also objects yet to be formed into discrete objects (e.g., objects yet to be severed into discrete objects from a continuous sheet or web of material), particles (e.g., superabsorbent particles or polymers), adhesives, lotions, ointments, and other substances, as well as portions or characteristics of any such components including, for example, fold lines, bond lines (e.g., ultrasonic bond lines), bonded or adhered regions, and registration marks applied to or about components for subsequent detection during a manufacturing or inspection process.

[0022] With reference now to the drawings, and in particular to FIG. 1, an absorbent article 20 is illustrated in a partially fastened condition and includes an absorbent chassis 32 having a front waist region 22, a back waist region 24, a crotch region 26 interconnecting the front and back waist regions 22, 24, an inner surface 28 that is configured to contact the wearer, and an outer surface 30 opposite the inner surface and configured to contact the wearer’s clothing. With additional reference to FIGS. 2 and 3, the absorbent chassis 32 also has a pair of laterally opposite side edges 36 and a pair of longitudinally opposite waist edges, respectively designated front waist edge 38 and back waist edge 39. The front waist region 22 is contiguous with the front waist edge 38, and the back waist region 24 is contiguous with the back waist edge 39.

[0023] The illustrated absorbent chassis 32 includes a composite structure 33 (FIGS. 2 and 3), which when laid flat can be rectangular or any other desired shape, and has a pair of laterally opposite front side panels 34 and a pair of laterally opposite back side panels 134 extending outwardly therefrom.

[0024] The composite structure 33 and side panels 34, 134 can include two or more separate elements, as shown in FIG. 1, or be integrally formed. Integrally formed side panels 34, 134 and composite structure 33 would include at least some common materials, such as the bodyside liner, flap composite, outer cover, other materials and/or combinations thereof, and could define a one-piece elastic, stretchable, or non-stretchable pants. The illustrated composite structure 33 includes an outer cover 40, a bodyside liner 42 (FIGS. 1 and 3) connected to the outer cover in a superposed relation, an absorbent assembly 44 (FIG. 3) disposed between the outer cover and the bodyside liner, and a pair of containment flaps 46 (FIG. 3). The illustrated composite structure 33 has opposite ends 45 (FIGS. 2 and 3) that form portions of the front and back waist edges 38 and 39, and opposite side edges 47 that form portions of the side edges 36 of the absorbent chassis 32 (FIGS. 2 and 3).

[0025] For reference, arrows 48 and 49 (FIGS. 2 and 3) depict the orientation of the longitudinal axis and the transverse or lateral axis, respectively, of the absorbent article 20.

[0026] With the absorbent article 20 in the fastened position as partially illustrated in FIG. 1, the front and back side panels 34, 134 are connected together by a fastening system 80 to define a three-dimensional pants configuration having an interior space 51, a waist opening 50 for receiving the wearer into the interior space 51 of the absorbent article 20, a pair of leg openings 52 and engagement seams 88 along which the side panels 34, 134 are connected. The interior space 51 of the absorbent article 20 is thus bounded by the absorbent chassis 32, the engagement seams 88 and the portions of the side panels 34, 134 extending on opposite sides of the engagement seams 88 (e.g., between the engagement seams 88 and the absorbent chassis 32). As used herein, the “interior space” 51 is intended to refer to the space between any two portions of a three-dimensional article that generally oppose each other. It is understood that a transverse cross-section of the article need not be closed, e.g., continuous, to define the interior space 51. For example, a two-dimensional article can be generally folded over on itself so that two portions of the article oppose each other to define an interior space of the article therebetween. Thus, the interior space 51 of the absorbent article 20 shown in FIG. 1 can be defined by the side panels 34, 134 themselves or, if the side panels are fully straightened therebetween, the interior space is defined by a